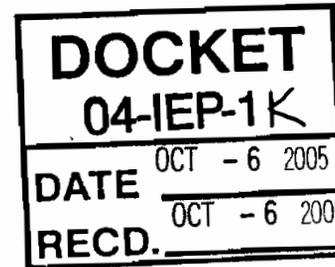




October 6, 2005



John L. Geesman, Presiding Member
Integrated Energy Policy Report Committee
California Energy Commission
1516 Ninth Street, MS-29
Sacramento, CA 95814-5512

Re: Comments of MidAmerican Energy Holdings Company
04-IEP-1K Committee Draft Document

Dear Commissioner Geesman:

MidAmerican Energy Holdings Company ("MidAmerican") is a global energy services provider serving almost 5 million customers worldwide utilizing a diverse portfolio of generating resources with 15 percent of its current worldwide generating capacity derived from renewable resources, including geothermal, wind, hydroelectric and biomass. Entities in the United States under the MidAmerican umbrella include MidAmerican Energy Company, an Iowa-based utility providing regulated electric and natural gas service to customers in South Dakota, Nebraska, Iowa and Illinois; CalEnergy, an independent power producer with geothermal power plants in California and natural gas facilities in New York, Arizona, Texas, and Illinois; Kern River Gas Transmission Company, providing natural gas transportation from Wyoming to Southern California; and Northern Natural Gas, an interstate natural gas transmission pipeline that spans from Texas to the Upper Midwest. MidAmerican is, likewise, seeking regulatory approval of the acquisition of PacifiCorp which provides electric service to customers in California, Oregon, Washington, Idaho, Wyoming and Utah.

MidAmerican commends the California Energy Commission ("Energy Commission") on its comprehensive analysis of energy policy in both the State of California and the western United States. A well-designed energy policy that appropriately balances energy, the environment and the economy is essential to ensure the continued supply of reliable and reasonably priced electricity to customers, maintains the nation's diverse fuel mix, and establishes appropriate and achievable performance criteria for the protection of the environment.

MidAmerican appreciates the opportunity to provide its comments, attached hereto, on the

Committee's draft 2005 Integrated Energy Policy Report. Please do not hesitate to contact me if you have questions regarding these comments.

Sincerely,



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cc Joseph Desmond, Chair

Introduction

MidAmerican Energy Holdings Company (MidAmerican) has reviewed the Committee's Draft 2005 Integrated Energy Policy Report ("Draft Report") and provides the following comments for the Committee's consideration in this matter.

MidAmerican believes that good environmental management is good business and we support an integrated approach to assessing energy policy issues that appropriately reflects the balance between energy, economics and the environment to ensure a reliable long-term energy supply at the most efficient cost to customers. Reductions in emissions (including greenhouse gas emissions) and increases in the efficiency of generating technologies reduce the environmental consequences of each unit of electricity generated.

In his response to the *2004 Energy Report Update*, Governor Schwarzenegger expressed a commitment to a diverse fuel base and a clean air quality profile through a balanced portfolio of new clean and diverse resources. Toward that end, the governor acknowledged that a variety of technology paths must be encouraged, including the deployment of advanced coal power systems such as Integrated Gasification Combined Cycle ("IGCC") and Supercritical Circulating Fluidized-Bed Combustion as well as technologies yet to be developed. While the governor supported continued clean coal technology research and development towards zero emission operation and the development of methods for capturing and storing significant amounts of CO₂, either as an integral part of the energy conversion process or in pairing with external CO₂ sequestration, he, likewise, asked the Energy Commission to work with the California Environmental Protection Agency and other agencies to evaluate the potential for California's access to such clean coal energy resources.

Benefits of Diversified Generation

The Draft Report acknowledges that California ratepayers derive some economic benefit from the relatively low-priced electricity generated from coal plants located in other western states, as nearly 20 percent of all retail electricity sales in California derive from coal-fired generation in 2004. In long term resource planning, California investor owned utilities are required to include an \$8 per ton CO₂ added in evaluating procurement contracts over five years in length. This adder presumably provides a hedge against adverse ratepayer exposure in the event that greenhouse gas reduction requirements are applied in the future to fossil-fueled power plants. This adder assists valuing the environmental attributes of generation, encouraging utilities to invest in lower-emitting resources. The CO₂ adder, however, becomes meaningless in the context of the Draft Report's proposed greenhouse gas emission standard since, regardless of the desire to balance the state's energy supply portfolio with diversified fuels, the only generation that would meet the emission standard would be natural gas combined cycle, nuclear and renewable generation as further discussed below.

While recognizing the role that coal-fired generation plays in California and attempting to account of the "costs" of CO₂ associated with that generation, the Draft Report discusses the advancement of clean coal technologies, including IGCC, ultra-supercritical pulverized coal, and supercritical circulating fluidized-bed combustion plants. Referencing the Electric Power Research Institute's CoalFleet for Tomorrow Initiative that simultaneously focuses on the research, development and demonstration needs for the deployment of next-generation power plant designs, the Draft Report advocates that California's efforts should focus on the longer term research and development on advanced concepts for clean coal plants that integrate the capture of CO₂—for plants coming on line after 2015-2020, 10 to 15

years from now. This long-term focus, however, does nothing to resolve California's pressing need for additional, affordable generation to meet current and projected demand increases. This supply issue is exacerbated when the additional aspect of replacement of aging units is considered. Will such a long-term strategy meet the energy needs of California residents today?

Consequences of Proposed Greenhouse Gas Performance Standard

By recommending that a greenhouse gas performance standard for utility procurement be set no lower than levels achieved by a new combined-cycle natural gas turbine (Draft Report at p. 71), the Energy Commission is effectively precluding the commercialization of other technologies that may emit more greenhouse gases than a new combined-cycle natural gas turbine, thus defeating the longer term goal of developing advanced combustion technologies that integrate the capture of CO₂. The standards imposed in California will, likewise, have an impact in the West and, quite possibly, the entire country. As the Draft Report acknowledges, the policy decisions made by another state have the ability to impact natural gas supply and price in California. The converse is, likewise, true. If, for example, an IGCC facility is constructed in a neighboring state that is interconnected to California, California utilities could not purchase the energy from that facility until such time as the CO₂ could be captured. Despite the fact that numerous environmental advocates support the construction of IGCC facilities in the Western United States, having the ability to sell energy into the open market is often a key economic driver in the decision to site a plant—particularly one that has a higher cost of capital. Without the ability to sell into the California market, the developer of that IGCC project would likely question whether there is value in building an IGCC plant with higher capital costs or building a combined cycle natural gas

plant with significantly lower capital costs but potentially higher operating costs if the plant has the added benefit of being able to supply the California market. Under such a scenario, both California and the other state lose—the IGCC plant is unlikely to be built, there is increased pressure on natural gas price and supply, there are fewer jobs created by a natural gas combined cycle plant, the generating portfolio is not diversified, energy security concerns are elevated, and CO₂ capture and storage is not advanced.

In an effort to implement a state energy policy developed to diversify its generating portfolio and secure a sufficient, cost effective supply of energy in the State of Iowa, MidAmerican, within the past few years, committed to adding coal, natural gas and wind energy facilities. All the facilities incorporated state-of-the-art emissions control technologies. In late 2004, MidAmerican commenced combined cycle operation of its 540-megawatt natural gas combined cycle facility, the Greater Des Moines Energy Center, with greenhouse gas emissions of approximately 753 pounds per megawatt hour (0.753 lbs/kWh). Utilizing this rate, a greenhouse gas emission standard for all energy generated in or delivered to California “no lower than levels achieved by a new combined-cycle natural gas turbine” would set the standard at approximately 0.753 pounds per kilowatt hour. This standard, if adopted, would eliminate all potential coal-based generation in the absence of the ability to capture CO₂, thus preventing California from achieving its goal of integrating the capture of CO₂ with development of advanced combustion technologies or diversification of the generation portfolio. The table below provides an analysis of various coal-fueled technologies in comparison to a new combined-cycle natural gas turbine.

| Fossil-Fueled Power Plant Emissions Comparison¹ | CO₂ Emissions lbs/kWh |
|--|---|
| Subcritical Pulverized Coal Plant with advanced pollution controls | 2.00 |
| Atmospheric Circulating Fluidized Bed Plant with SNCR | 1.92 |
| Pressurized Fluidized Bed Plant without SNCR | 1.76 |
| Supercritical Pulverized Coal Plant with advanced pollution controls | 1.83 |
| Natural Gas Combined Cycle Plant with advanced pollution controls | 0.75 |
| Integrated Gasification Combined Cycle Plant | 1.76 |

As the table demonstrates, in the absence of carbon capture, not even IGCC plants can achieve the level of CO₂ emissions from a natural gas combined cycle plant. Moreover, preparing for the integration of CO₂ capture is an expensive proposition. For example, Energy Northwest has proposed a 600-megawatt IGCC plant for possible construction in western Washington. The anticipated cost of the enhancement to make the plant CO₂ sequestration ready is \$35 million above the \$1 billion cost to construct the facility.² Furthermore, this \$35 million enhancement does not include the cost of actually installing and operating the CO₂ sequestration equipment, if and when the ability to sequester CO₂ is developed. And, based on the Draft Report’s proposed greenhouse gas emission standard, until such time as the ability to sequester CO₂ is implemented at the facility, California utilities could not purchase energy from the facility to supply electricity to their customers in California. With today’s volatility in natural gas prices and California’s significant reliance

¹ Performance data for all but the supercritical and natural gas facilities (which utilize MidAmerican data) is based on the Department of Energy’s National Environmental Technology Laboratory “An Environmental Assessment of IGCC Power Systems” by Jay A. Ratafia-Brown, Lynn M. Manfreda, Jeff W. Hoffmann, Massood Ramezan and Gary J. Stiegel, September 2002.

² See <http://www.energy-northwest.com/gen/igcc/environmental>.

on natural gas for power generation, the foreseeable result is that California customers would continue to be subject to high electricity rates that are likely to increase further.

Carbon Capture and Storage

Carbon capture from power plants has not been widely applied in the United States, nor have the costs associated with carbon capture and storage been fully considered. This situation was discussed in the recent “Summary for Policymakers” (herein referred to as “Summary”) by the Intergovernmental Panel on Climate Change (“IPCC”)³, the pre-eminent organization established by the World Meteorological Organization and United Nations Environment Program to scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. The IPCC Summary noted:

Since neither Natural Gas Combined Cycle, Pulverized Coal nor Integrated Gasification Combined Cycle systems have yet been built at a full scale with CCS [carbon capture and storage], the costs of these systems cannot be stated with a high degree of confidence at this time. In the future, the costs of CCS could be reduced by research and technological development, and economies of scale. (See “Summary” at p. 14)

The IPCC summary notes that CO₂ capture and storage (“CCS”) may be “an option in the portfolio of mitigation actions” for reducing greenhouse gas emissions; however, “the widespread application of CCS would depend on technical maturity, costs, overall potential, diffusion . . . regulatory aspects, environmental issues and public perception.” Importantly, the IPCC summary notes that “a power plant equipped with a CCS system (with access to geological or ocean storage) would need roughly 10 – 40% more energy than a plant of

³ See IPCC Special Report on Carbon dioxide Capture and Storage, Summary for Policymakers, September 25, 2005 available at <http://www.ipcc.ch/activity/ccsspmpdf>

equivalent output without CCS, most of it for capture and compression.” (See “Summary” at p. 4).

In addition to the costs and ability to effectively capture and store CO₂, the IPCC summary captures concerns regarding local health, safety and environmental risks of CCS. Noting that existing CO₂ pipelines are mostly in areas of low population density, accident numbers reported per kilometer pipeline are very low and are comparable to those for hydrocarbon pipelines. However, “a sudden and large release of CO₂ would pose immediate dangers to human life and health, if there were exposure to concentrations of CO₂ greater than 7 – 10% by volume in air.” See “Summary” at p. 21. With respect to releases associated with geological storage, the IPCC summary notes that “the local health, safety and environment risks of geological storage would be comparable to risks of current activities such as natural gas storage, enhanced oil recovery, and deep underground disposal of acid gas.” See “Summary” at p. 21. Furthermore,

Impacts of elevated CO₂ concentrations in the shallow subsurface could include lethal effects on plants and subsoil animals, and contamination of groundwater. High fluxes in conjunction with stable atmospheric conditions could lead to local high CO₂ concentrations in the air that could harm animals or people. Pressure build-up caused by CO₂ injection could trigger small seismic events. (“Summary” at p. 21)

The ability to capture and store CO₂ on a long term basis has not yet been fully developed, nor have the risks of transfer and/or storage been appropriately considered.

Conclusion

While MidAmerican believes it is important to consider the impacts of greenhouse gas emissions in the development of new electric generation, the Draft Report’s proposal to establish a greenhouse gas emissions standard no lower than levels achieved by a new

combined-cycle natural gas turbine is premature and will result in higher overall costs for electricity in California and other parts of the United States. MidAmerican believes the Energy Commission should refrain from implementing an interim or final greenhouse gas emission standard without further investigation of the impacts of such a policy on, *inter alia*, the cost of electricity, availability of and impact on natural gas supplies, and the health, safety and environmental risks of CO₂ capture and storage. MidAmerican welcomes the opportunity to engage in a robust, deliberative process with the Energy Commission in that regard.